

Analytical Market Trading

The 'Range bar', Time and Price. *April 2004*

Throughout the book we have seen how the movement of price is greatly influenced by the passage of time, and by simply calculating Time & Price we are able to define the market structure with precise accuracy. These recurring patterns in the market have a statistical tendency to continually appear and reappear over and over again, and as traders we have a visual inflection of the market to make highly accurate forecasts and hopefully successful trades. There is no point in knowing or providing oneself with a model of expectation without actually trading it. Even though it might make us feel good that we 'predicted' a move, you might as well pack your bags and give up trading if you don't find some way developing a profitable system to trade 'our models of expectation'.

The easiest way to make money in the market is finding a 'trend' and trading that trend, letting the profits run whilst cutting our losses. Most trend traders will develop a system around a 'breakout' and either adopt money management rules based on pre-determined profit objectives or run trailing stop losses; a perfect example would be the break of the 3-day cycle and trade towards higher timeframe dynamic ranges. Now each trader will have varying success even though a group of traders will trade the exact same system, and those reasons usually stem from individual money management rules and the size of the stop loss. Sure a tight stop loss might save your skin on occasions but you don't want to be stopped out only to watch the market go in the direction you wanted it to go in the first place.

The zone of the breakout using higher timeframes and the 3-period cycles defines the strength of the trend. Keep in mind that even though a 3-period cycle breaks, the movement might only be a rotation towards a central zone, and in fact it's not a breakout. A breakout has to be defined by the extreme of the timeframe, and we have seen these extremes provide the necessary support and resistance for the remainder of the timeframe in question whether trading derivatives or stocks. What looks like a breakout when using conventional technical analysis can easily be a trap for many unsuspecting traders because of the dynamic ranges of the higher timeframes, and more often than not reverse back and look like a 'fake-brake'.

I now want to change tactics and focus on Price and remove TIME all together. You are probably thinking, "*Hang on, we've just defined the market using TIME and now you want to get rid of it, what's going on?*" Well that's correct, but I'm now going to look at the **Range of Price**. The Range of Price is not what we normally think it is, the Range of Price is actually the entire range including 'Gaps' that have occurred in the market, so any chart we view, whether a daily bar chart or an intra-day chart will have a continuing flow. When we take a close look we will observe the same recurring patterns in the market that has been described throughout this book; movement from central zones of TIME to the extremes and back.

The reason we use a 'Range bar' is because we want to be able to ride any trend as long as possible and remove any fear that might effect a trader, and traders do have the ability to sabotage any trade by thinking of negative outcomes even though there might not be any around.

Figure 39 is a chart of BHP, which is a mining stock that also trades in the US, because of this the stocks is volatile and can 'gap' a lot because of overnight price action which heavily influenced by the fluctuation commodity prices. We can see by the daily chart on the left the amount of *gaps* that has appears in the price of the stock since the start. For anyone, the fear lies in the notion that these Gaps in the market might whipsaw a trader out of their position only to see the market run away in the direction they were trading, or for some it could be the fear of giving away profits; and fear is a real threat to the psychology of any trader.

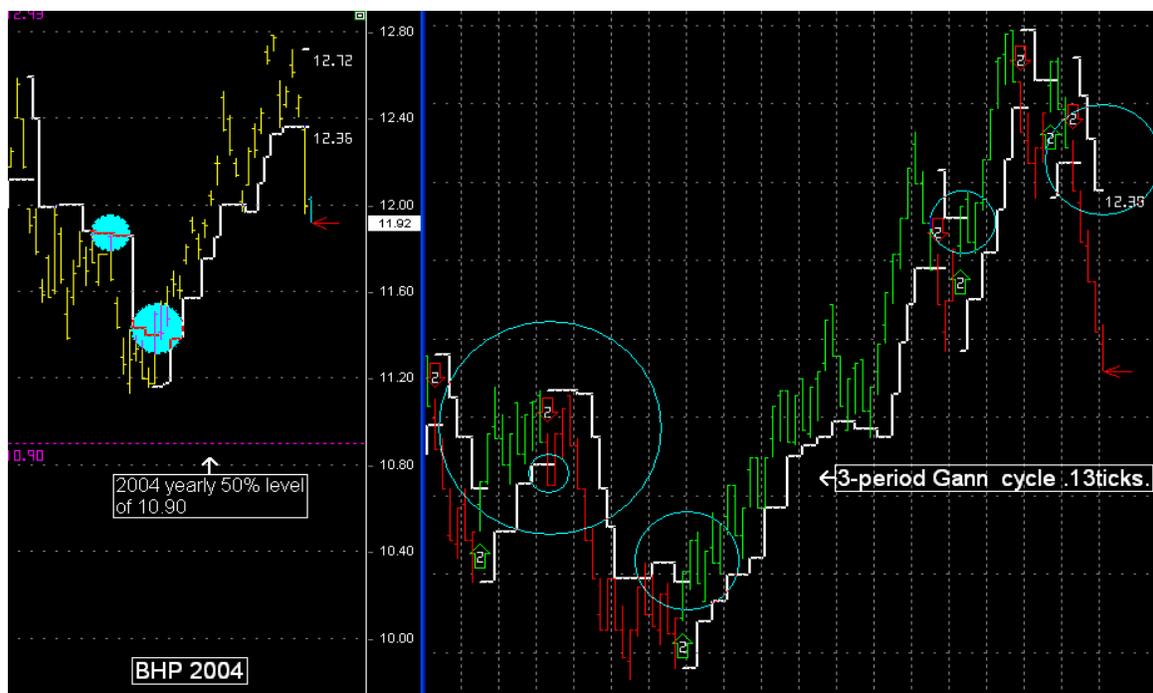


Figure 39.

The chart on the right is a 'Range bar chart' of the same stock, but a range that the individual trader decides to use to fills all gaps. In this chart I have used the range of 13 points, so any movement in price in a direction of 13 points (*or because the stock is in decimals, the range is .13 cents*) will draw a new bar. And when we introduce the 3-period cycle using this range the market can be clearly traded whilst riding the trend.

For example, the daily 3-period cycle (white) defines the trend in the left chart, but we can filter the stock using the Range Bar as part our 'money management' rules. So if the 3-day cycle is trending in a direction (filled circles) then all a trader has to do is trade using the Range bar and its own 3-period cycle as shown in the right hand chart in Figure 39. And even though you might be running trailing stops using this, once the reverse

occurs, a trader can re-enter the underlining direction of the daily trend using the same technique.

The Range Bar is a perfect tool at eliminating noise of price because it simplifies the price action and helps to remove any fear that a trader faces. It also helps a trader remove all lagging price indicators that continually give a 'false' impression of the market, by suggesting the market is 'overbought' or 'oversold', as many lagging indicators do. I'm not a fan of using any indicators whatsoever because they are inherently late, and I don't believe they give me any edge at all.

Each stock or derivative will have its own unique 'Range of Price' that fits well with the individual market structure, and short-term traders can actually run two varying lengths when trading the average length of any bar in the market. For example, a trader might want to back test the Range bar of 55 points and then trade a shorter length range bar for any probable trades until the 55 point bar range is complete. This type of trading will be explained in detail as we continue on with the topic in this chapter.

Origins

A Brazilian broker and trader - Vicente M. Nicolellis Jr, conceived the 'Nicolellis Range Bars' in 1995.

During 13 years running a trading desk in Sao Paulo, where local markets tend to be volatile, he wrestled with the problem of how to handle this volatility and its variability. Finally he concluded that the most promising approach would be to eliminate time from the equation, and just concentrate on price. After all it is price that you trade (rather than time, unless it is an options market). Essentially this reverts to the early days of Technical Analysis, and the use of Point and Figure Charts, which just record price change. By using a constant range, ex. 10, and opening a new bar once that range is covered, one can also apply modern concepts of indicators, which are bar based. In 1996 the concept was computerized, which meant that many more markets could be studied. Experience in the last 8 years has shown that Nicolellis Range Bars are particularly good at focusing on and clarifying movement. The way in which a long meandering, horizontal "congestion" is condensed into a bar or two, concentrates attention on the essential underlying price movement while eliminating unnecessary "clutter" and "noise". This also makes the use of Trendlines easier.

The range bars just look price, the bar does not close at a specific time but closes when a range is complete, then a new bar opens.

If you have a market that moves from 1 to 9, then 9 to 1, then 1 to 9 during 2 days, if you create a range bar chart of \$10 you will only have a bar that goes from 1 to 9 during these 2 days and this bar is not closed. If the market moves to 10 then the bar closes and a new bar opens with open price at 10. This new bar now must have \$10 range to close. Let's

say the market goes back to 6 and then up to 17, the last range bar closes at 16 (making a range bar from 6 to 16) a new bar opens with open price at 16 and this bars price is now 17. This new bar has now a range of \$1 (16 to 17) and will wait until a complete \$10 range to close.

As a trader who has uses Range bars, I do recommend others find some way of incorporating Range bars as part of their trading systems to clarify the movement in price over time and also develop money management rules to maximize the trends that occur in the market.

Range Bar, 'a window into the future'.

Let's take another look at the Range bar along with dynamic Timeframes so we can find some way of getting in early at the extreme of the range in a trending market. The reason we want to do this is because the markets do spend time rotating and consolidating after any trending period, and we want to be able to trade any 'probable rotation' towards a central point in TIME, essentially trading against all trends. This type trading will especially suit a derivatives trader looking for an edge, whether using mechanical systems or trading discretionally in a systematic fashion. Figure 40 is a chart of the financial index. So instead of trading a group of banks, traders might want to leverage themselves by trading the financial index. This daily bar chart is showing the higher timeframe extremes using the same concept of Math, Time and Price but this time we are using the past 5 months to provide the necessary dynamic market path we are looking for. So as each timeframe closes we do have a 'model of expectation' that price can go higher within each monthly timeframe whilst above the 3-week cycle, and we can clearly see this is the case.

We can see the resistance zones at each dynamic high zone but once we reach the month of March 2004, price actually breaks those highs of 4271 and continues higher. The 5-month dynamic highs are achieved by taking the range of the past 5 months and using $H+C+L/3$ as described throughout the book.

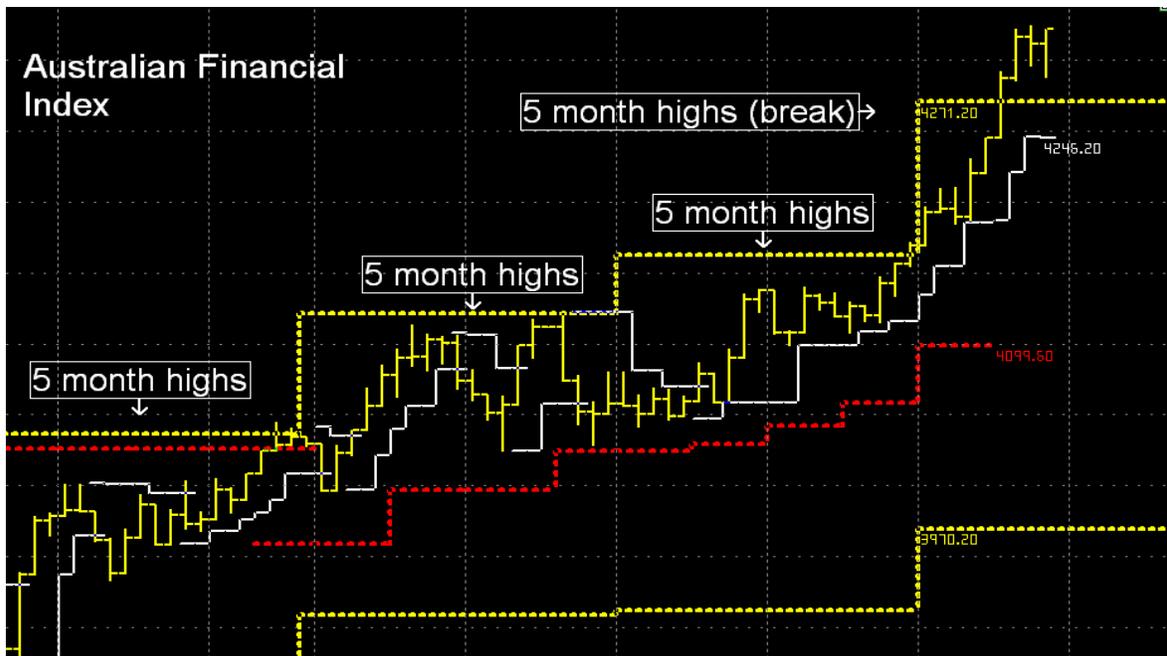


Figure 40.

Remember each entity will have its own unique rhythm, the Australian Index (SPI/XJO) operates using 3-period dynamics of the higher timeframes, the US market (DOW/S&P) follows closely using 4-period dynamics, the Financial Index in this case uses 5-periods, and back testing the European indexes I found that they seem to follow the 5-period dynamics of the higher timeframes. The only way you can find the unique relationship between any market and stock when using the AMT methodology is through your own back testing. The minimum is always the 3-periods of Time.

So a trader who would normally short from this higher zone (4271, March high) would have been stopped out, hopefully they would have gone long to this zone in the first place but any 'short-trade' would have failed, and we need to keep in mind that such a break of these ranges, price can remain outside until the new timeframe begins in the following month of April. So 4271 is still a critical zone but now it could provide support for the remainder of March 2004.

But what would have happened if a Trader with a clear defined 'model of expectation' of price going higher in March towards 4271 used a Range BAR to filter the market. So instead of shorting at the highs of 4271, actually exited the trade and waited for a confirming reversal in the market before considering such as trade using the optimum range of the index. I say 'Optimum Range of the Index' because each stock or derivative will have its own unique Range of movement. What might be ok for a stock like BHP using a 13-point range bar might not be when trading the financial index, and can actually whipsaw a trader out of their position. So for the financial index I use a Range of 22 and when we have a look at Figure 41 we can see the trend remains intact.

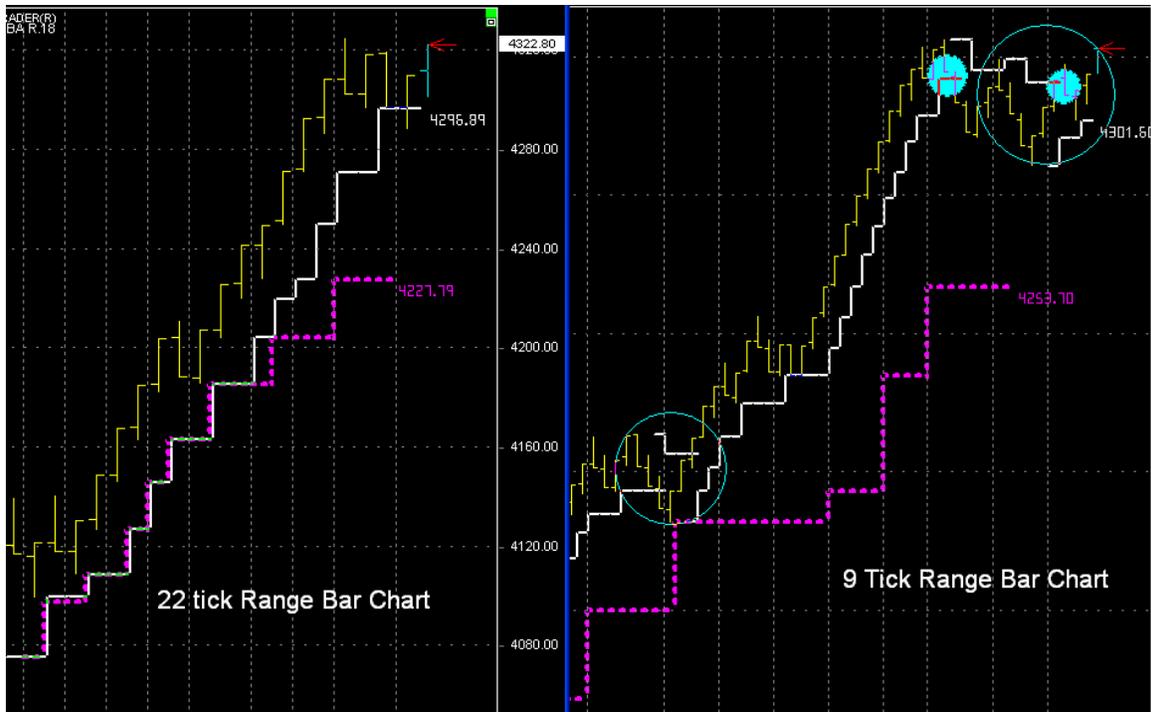


Figure 41

You can always filter any intra-day optimum range even further; I would normally use a 3rd of the range or in this case the Range Bar of 9 (right chart). Traders can run stops tight stops using these range bars and 3-period cycles. This is what I mean about running two varying lengths of range bars, the 9 bar range alerts the change of trend but the 22-range is the optimum length. Once the 9 bar range moves back above its own 3-period cycle high once again in late trading (confirmed by the close of the bar) traders can either re-enter on the LONG side as had previously occurred many days ago (earlier circle) or other traders wanting to short the market have a clear picture that any probable short is now open to RISK. The 22-range bar cycle has been long since 4060 and is still trending over 250 points at this point in the market and could continue into April's new dynamic highs.

Optimum Range of Price.

The optimum range of price will vary depending on the entity traded, and the simplest way of finding this optimum range is by visually eyeballing the chart and finding that the market statistically will complete precise 'range bars' or using the 'average true range' indicator and find what is the statistical average of the range over a long period of time. You will find for any market there will be a Range of Price that sticks out, and when each range is complete price can actually reverse. What I mean by that is, the market will trend

in one direction but when the Optimum Range bar is complete the market can at that point actually reverse and complete another 'exact' range bar in the opposite direction.

Figure 42 is of National Australia Bank showing the weekly charts and yearly Primary ranges. The Chart on the right is showing the optimum Range bar of NAB, this optimum range is 155, or \$1,55. We can see the rotation of price in waves of 1.55 and most of the reversals are occurring over this 1.55 range, so any trader developing a system once the system completes the 1.55 range the system is open to Risk because of the probability of reversing, or a trader has a valid profit objective once he is in a trade based on the completion of the Bar. A trader now has a statistical edge of a profitable return based on the completion of these bars.

As I've explained throughout this book, the weekly Gann cycle defines the secondary Trend of the market along with the Quarterly 50% level and we can see in the above chart how the weekly Gann cycle has defined the Trend. But in the chart on the right we can see a 3 bar reversal break above 30.80, this actually precedes the break of the 3-week cycle of 31.11 when price breaks the highs of the 3 bar 1.55 optimum range, it then statistically moves upwards completing the 1.55 range once again at 31.78.

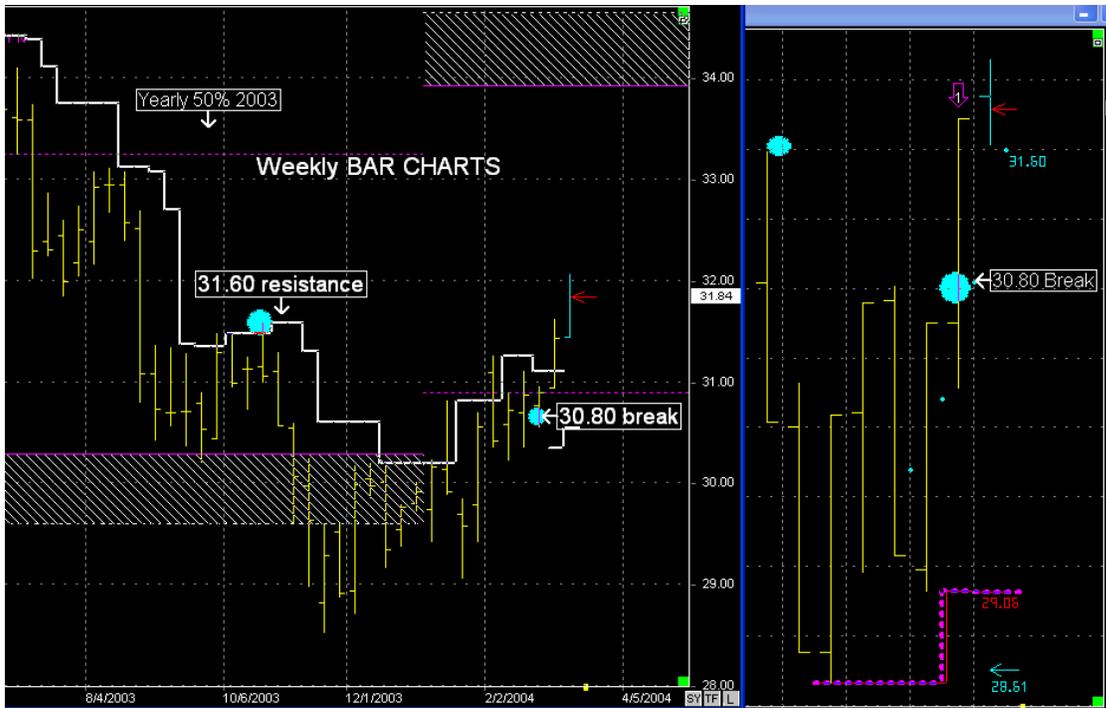


Figure 42.

The best filter when trading is using the period of 3, by that I mean, once you find the optimum range bar the best filter is to use approximately a third of that range. We have seen the reoccurring patterns of price movements over 3 bars, for example a 2 day stall 3rd day rally and even when using the optimum range bar the same principles apply; the movement of price in 3 bar waves, and we have seen this when the 3 bar (1.55) high breaks out at 30.80.

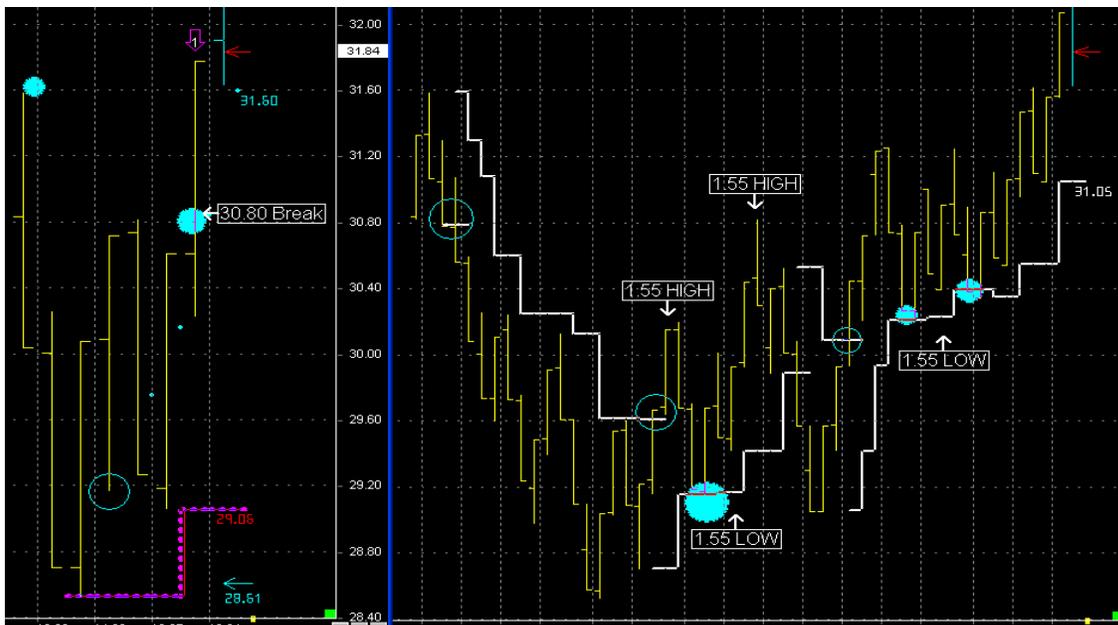


Figure 43.

The 3rd of the range filter is .515 and we use the exact same principles of the 3-period cycles to filter the movement of Price. In Figure 43 we can see the 1.55 range in the left chart and in the right chart we have the filter range bars giving us a statistical edge whenever the market breaks these highs. When you have a break of the .515 we have a reference of the price moving to complete the 1.55, and once that occurs there is a probability that a reversal could occur back into the trailing 3-period cycle lows.

Notice in chart (figure 43) how each higher 1.55 low is actually being supported by the .515 3-period cycle low and then price moves upwards to complete the next 1.55 high, and the same ebb and flow of the market continues onwards. A trader has a simple system of statistical probability of price moving in a direction that has a statistical edge. The trader has well defined levels in the market to trade from (break) and well defined levels in the market to profit by. He or she has now an edge that is well defined and all they have to do is develop their own money management rules. Each trader should now be able to eliminate any fear that comes with trading because we believe that price will follow the average true range and complete the bar.

These filtered Range bars do provide the trader with clarity because it eliminates the noise, and traders can develop mechanical systems based on what the 'model of expectation' is, now based on a statistical move in a statistical length of price.

Any systems that are developed can be based around smaller timeframes and/or range bars. Or traders can be simply trade from any Range Bar 3-period zone discretionally, in a systematic way whilst running stops outside the 3-period cycle zones. Traders should develop sound money management rules based this concept by either exiting at the range bar extreme or filtering out the time of the trade with any shorter mechanical based system. Remember we do have precise targets to trade towards, so re-entering the market based on the completion of the range is what trader's should focus on.

Double Bar Optimum Range Bars.

The movement of the market normally follows a 2 bar stall with the 3rd bar confirming move; the trending bar, confirming any break or continues on as part of the trend. We have seen this price action whenever the market breaks a 3-day cycle; it can either rally or stall moving into a 2- day rotation before continuing with the new cycle and trending towards an extreme range (3 week dynamic range). As seen in Figure 44 the market moves to extreme points in the market based on the 3-week and 3- month dynamic timeframes.

We can also see in the daily bar chart of the Australian Index futures (SPI) the amount of time and days the market spends moving from one point in the market to the next. For

day traders the use of the SDC (chapter 5) would be used to help the trader have a statistical edge in the market as they confront each day, however there still is a lot of noise for any inexperienced trader trying to understand where the market is headed.

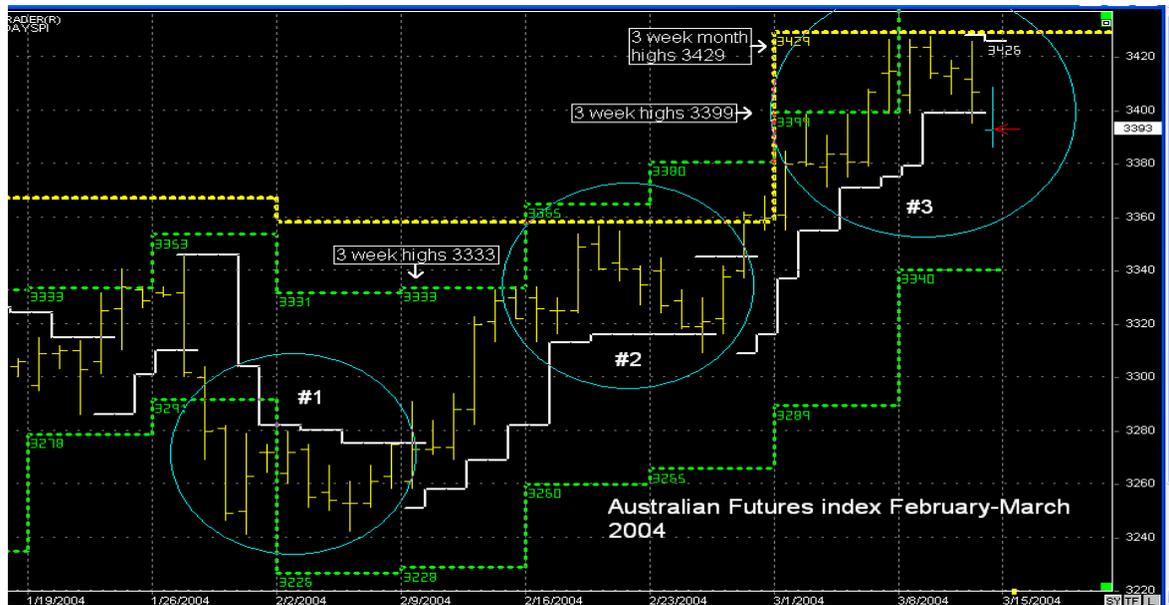


Figure 44.

There are many zones in the market where a trader could have traded from, such as the break of the 3-day highs towards the 3-week dynamic highs #1. This is a probable move that continually reoccurs within the market structure as described earlier in the book. There are also reversal trades from extremes based on statistical probability of these 3-period dynamic zones of the higher timeframes failing #2 & #3. (February & March 2004)

As described earlier, the probability theory of price action is outweighed by the probability of statistics of these reversal zones and returning profits above zero dollars. This statement will become clearer over the next few pages.

The Optimum Range of the SPI is 27 points and provides the trader with clarity without the noise. The Optimum Range of 27 points will always provide the trader with an idea of where the market is headed as it moves within the 3-period daily cycle, and if 27 points is the optimum range or average true range then the same 3-period cycle using 27-points is used.

In Figure 45 we can see the probable moves of the market moving in 27-point waves, and any reversal from any extreme has a high probability of pulling back a minimum of

27 points. There is also a high probability that whenever the market reverses and completes the 27 point range move, price will normally move into a 2 bar or double bar optimum directional move. This directional move will normally follow if the 3-period cycle breaks, or tests and bounces continuing on with the trend from any trailing Gann zone as seen in the right hand chart. It is the same process of two bars in the same direction, and if this is the case we should be looking at ways for trading this phenomena.

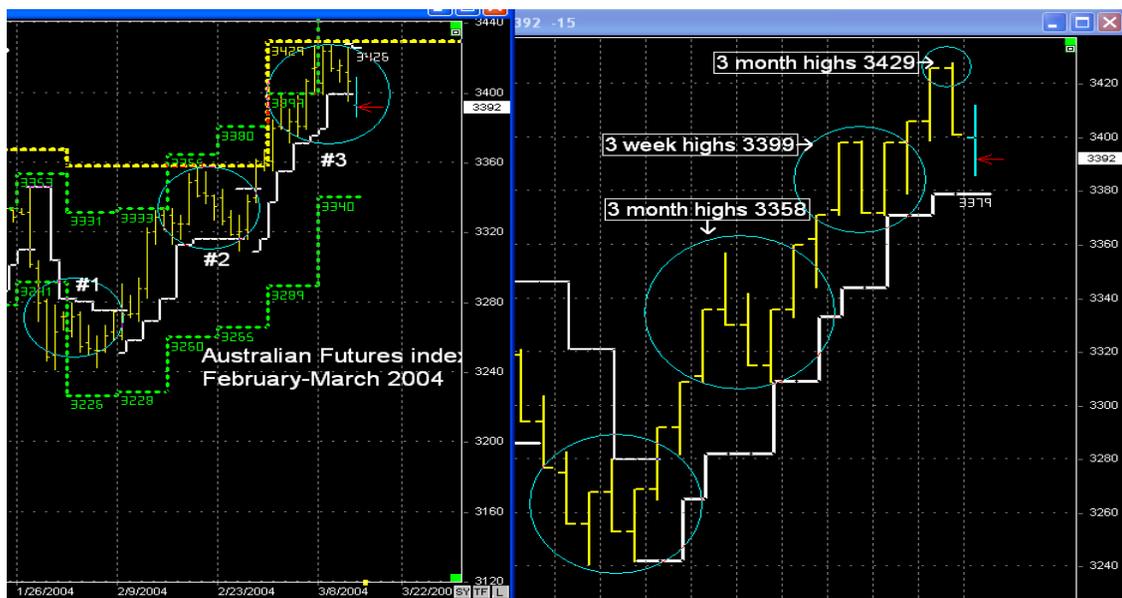


Figure 45.

We need to be reminded these Range bars are independent of TIME, however Time plays a very important role as seen in Figure 45 as we can see the failure at each 3-week extreme high and then each preceding move down is a minimum move of 2 bars of 27 points. The only failure of a double bar down 27 point occurs after 3399 reverses however we need to keep in mind that price has broken above the February high and we can see the confirmed break on the 3rd bar as it continues towards the new March highs of 3429.

The double bar is a phenomenon that continually reoccurs on most Range bars as long as the TIME zones allow it to as described above.

We now have the optimum Range for the SPI of 27 points and we should now introduce a filter range bar for intra-day strategies. This will be a 3rd of the range, so we use a Range bar of 9 and keep in mind that the Range of 9 can follow a very similar market structure of any 3 bar cycle. Our focus is exactly the same; once a 9 point range

reverses as a confirming tool then our focus is to trade the completion of the 27 point move as the first profit objective.

Figure 46 illustrates what I mean. Have a close look at the market movement of each range of 9, there is a high statistical probability that there will be a 2nd range of 9 in the same direction as a reversal bar. So for day-traders this is a must, because there is no point buying if the previous bar is the first bar of a reversal down bar or visa versa. This price action alone swings the odds in the favour of the trader because it clarifies the price movement and should in fact help a trader minimise any losses from trading too early, and again help maximise any gains of trading the direction of the market.

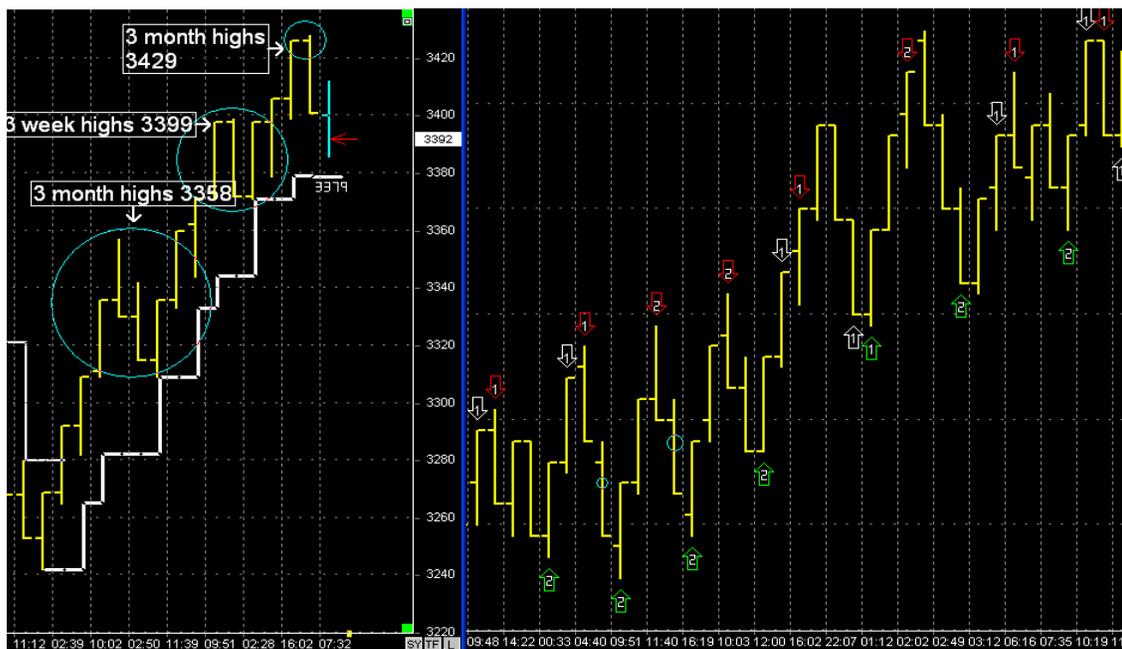


Figure 46.

By developing a mechanical system that uses the above price action and using only the reversals of each 2-bar move we can see how profitable it can be even without any stops in place. Since the start of the trading year 2004 (approximately 40 trading days) by taking the trade in reverse of each 2 bar move against the trend, the system returns 353 points (\$25 per point per contract) and a success rate of 75%. Keep in mind there are no set rules in place or stops, it is an automatic mechanical system that is open to all market forces.

Performance Results for APSPOT24 Range 9 D- W System Least R5C	
From 12/31/2003 10:46 to 3/12/2004 10:48	
Gross Profit	657.00
Gross Loss	-315.00
Net	342.00
Profit Factor	2.09
Total Trades	120.00
Total Winning Trades	90.00
Total Losing Trades	30.00
Average Points per Trade	2.85
Percent Profitable	75.00
Largest Winning Trade	19.00
Largest Losing Trade	-37.00
Average Winning Trade	7.30
Average Losing Trade	-10.50
Ratio Average Win/Average Loss	0.70
Average Trade	8.10
Max Consecutive Winners	13.00
Max Consecutive Profit	96.00
Max Consecutive Losers	3.00
Max Consecutive Draw Down	-45.00
Maximum Open Interest	1.00
Maximum Open Interest Average	1.00

Even this is only a small sample of this phenomenon I will explain in detail how we develop systems based on this in the Chapter 7... “Systems Development”

When we look at figure 47 we can see that the 3-month highs for March 2004 has provided resistance for 9 days and on the 10th we have a breakout, this breakout occurs on the day of expiry of the futures contract.

It is important to understand what can occur when a contract expires. The Spot contract will move into the future contract, because this future contract will normally trade at a premium to the current Spot, there is a tendency that around expiry or 1-2 days later the SPOT will match the future contract in Price. Because Price is normally trading above any dynamic extreme, there is more of a chance of a breakout occurring. You will see this phenomena occurring always around the expiry.

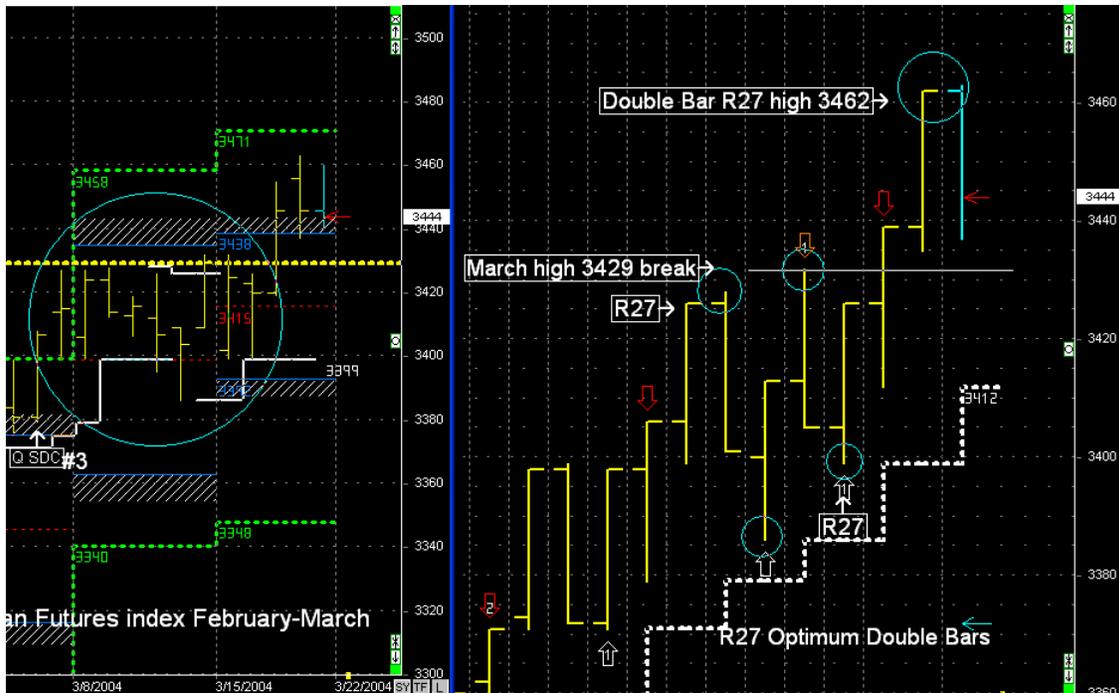


Figure 47.

So we have a break of the March highs, our next target on the break of 3429 is the 3-week highs of 3471 because we are looking for our next timeframe based on the 3-period dynamic ranges. We also need to remind ourselves price can remain outside these 3-month highs of 3429 until the next month beginning in April, and in fact prices have more of a chance of heading towards the new dynamic highs for April, A new all time high for the stock market.

When we have a look at the chart on the right we can see that the break of 3429 and the double bar completes at 3462, at the 27 point move high before we see a pullback. The pullback is now supported at 3438 because of the weekly pivot highs. This can support price until the completion of the trading week.

Trader objectives.

Range Bars are a unique way of looking at the market and clarifying the market structure because it removes TIME and Price. We remove the notion of price because we are taking into account the gaps in the price structure, so we are incorporating levels in the market where no trades have actually occurred. This removes noise and gives a trader a view of the market being less random in nature and more statistically sound.

Statistically sound because each bar would need to complete in direction of the trend based on the 3-period cycle, so if we have defined an 'Optimum Range' a trader can develop systems based on the filter ranges with clear and precise profit objectives. Range bars help define any double directional movement thus helping the odds swinging in favour of the trader each and every day.

The movements have more clarity but traders need to be reminded, the movement of price will still be determined by TIME. TIME will still define the trends, TIME will still define resistance, and TIME will still define support. Range bars only help a trader define statistical profit objectives based on the Statistical movement of Price over TIME, thus completing the Optimum Range.

Whatever the timeframe and whatever the price action a trader is reading, each trader should now have clear 'models of expectations' based on probable moves using TIME, and using the optimum range bars using the same principles of cycles. This and everything else within the book should provide any trader with an edge and more importantly swing the odds in our favour each and every day.

Frank Dilernia.

The AMT methodology is owned and copyrighted by Frank Dilernia and cannot be reproduced without the consent of the Author and developer.

Analytical Market Trading ' a window into the future' is one of the most advance trading books written for today's markets based on statistical repetitive patterns that continually appear and reappear over and over again. The information within this book does not appear, I repeat does not appear anywhere else. There are 8 chapters and over 220 pages of detailed information on trading derivatives and stocks. The book takes a close look at intraday strategies for daytraders based on advanced timing techniques and other statistical information that swings the odds in the traders favor each and every day.

The book also takes an extensive look at medium term swing trading and also longer term position trading. The last chapter on compounding for long term wealth is a must for any trader.

**For information about purchasing the book please click this link
<http://datafeeds.com.au/futures.html>**

**Thank you.
Frank Dilernia.**

+++++

DISCLAIMER: I am NOT an investment advisor and do NOT hold a necessary licence to give advice, or have any formal training, to give investment advice. This information is only for educational purpose. Before acting on any of the information you read and making any financial or investment decisions, you should always consult your advisor(s) or other relevant professional experts.